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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,247	06/20/2003	Xia Tang	02-641/EH-10787	6688
34704	7590	12/17/2004	EXAMINER	
BACHMAN & LAPOINTE, P.C. 900 CHAPEL STREET SUITE 1201 NEW HAVEN, CT 06510			ZHENG, LOIS L	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,247

Applicant(s)

TANG ET AL.

Examiner

Lois Zheng

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. Claims 1-8 are currently under examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsushima et al. US 4,017,334(Matsushima).

Matsushima discloses a process for treating aluminum with a coating solution comprising phosphate and fluoride(abstract). The coating solution may also include a polyphosphoric acid(i.e. organo-phosphonic acid,) such as 2-ethylhexyl acid phosphonic acid(i.e. straight or branched alkyl phosphonic acid)(col. 3 line 65 – line 4 line 11) . The fluoride concentration should be in the range of 0.1 – 10g/l and the phosphate concentration should be in the range of 0.05 – 50g/l(col. 3 lines 54-64).

The preamble “for forming a chromate-free, corrosion resistant coating on a product formed from magnesium or a magnesium alloy” is construed as bearing no patentable weight since it is merely an expression for intended use. See MPEP 2111.02.

Therefore, Matsushima anticipates claims 1-2 and 6 of instant invention.

4. Claims 1-3 and 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomlinson US 5,380,374(Tomlinson).

Tomlinson discloses a conversion coating for aluminum, ferrous and magnesium alloyed material(abstract, col. 2 lines 17-21), which meets the preamble of “for forming a chromate-free, corrosion resistant coating on a product formed from magnesium or a magnesium alloy” as recited in instant claim 1. The coating solution comprising fluoride, phosphates and a crystal deformation agent such as nitrilotris(methylene) triphosphonic acid(NTMP)(abstract, claim 24).

With respect to claim 1-3 of the instant invention, Tomlinson anticipates the instant claims 1-3.

With respect to claims 7 of the instant invention, Tomlinson also discloses a method of treating the metal surfaces, such as magnesium alloy, by applying the aqueous coating composition to the metal substrate(abstract, col. 2 lines 17-21, claim 27). The forming of an insoluble salt by the reaction of phosphonic acid and magnesium metal would be inherent in Tomlinson’s method since Tomlinson’s coating composition contains phosphonic acid such as NTMP.

With respect to claim 8 of the instant invention, the coated magnesium substrate prepared by the coating method of Tomlinson would meet all the limitations of instant claim 8.

Therefore, Tomlinson anticipates claims 1-3 and 7-8 of the instant invention.

5. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Meagher US Patent Application Publication 2003/0188807 A1(Meagher).

Meagher discloses a conversion coating composition comprising fluorometallate with at least four fluorine atoms, inorganic oxyanions containing phosphorus and organic phosphonate anions(abstract). The organic phosphonate anions can come from nitrilotris(methylene) triphosphonic acid(page 3 paragraph 24).

The preamble "for forming a chromate-free, corrosion resistant coating on a product formed from magnesium or a magnesium alloy" is construed as bearing no patentable weight since it is merely an expression for intended use. See MPEP 2111.02.

Therefore, Meagher anticipates claim 1-3 of the instant invention.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1742

7. Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushima in view of Venables et al. US 4,308,079 (Venables).

The teachings of Matsushima are discussed in paragraph 4 above.

However, Matsushima fails to disclose the claimed nitrilotris(methylene) triphosphonic acid (NTMP) as recited in claim 3 of the invention.

Venables discloses using of 1-about 500ppm of nitrilotris(methylene) triphosphonic acid as corrosion inhibitor for treating aluminum (abstract, claims 1 and 6).

With respect to claim 3 of the instant invention, it would have been obvious to one of ordinary skill in the art to have incorporated nitrilotris(methylene) triphosphonic acid of Venables in the amounts of 1-about 500ppm as disclosed by Venables into the coating solution of Matsushima as the organo-phosphonic acid in order to improve corrosion resistance by reducing hydration of metal oxides as taught by Venables (col. 2 line 34 – col. 3 line 10).

With respect to claim 5 of the instant invention, the amount range of 1-about 500ppm of NTMP as disclosed by Matsushima in view of Venables overlaps the claimed amount of corrosion inhibitor (i.e. 10ppm to 0.5 wt%) as recited in instant claim 5. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed NTMP amount range from the disclosed range of Matsushima in view of Venables would have been obvious to one skilled in the art since Matsushima in view of Venables teach the same utilities in its' disclosed NTMP amount range.

Art Unit: 1742

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushima in view of Briles et al. US Patent Application Publication 2003/0150525 A1(Briles).

The teachings of Matsushima are discussed in paragraph 4 above.

However, Matsushima does not specifically teach the use of vanadate in its coating solution.

Briles teaches a process for treating magnesium or magnesium alloy surfaces with a chromate-free coating solution comprising phosphate ions, fluoride ions and sodium vanadate as corrosion inhibitor(abstract, page 2 paragraph 0021).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the vanadate of Brile into the coating solution of Matsushima as corrosion inhibitor in order to improve the humidity resistance as taught by Briles(page 2 paragraph 0021).

9. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushima in view of Tomlinson.

The teachings of Matsushima are discussed in paragraph 4 above. Matsushima further discloses a process of using the coating composition to treat aluminum surfaces.

However, Matsushima does not specifically disclose the magnesium or magnesium alloy as recited in claim 7 and 8 of the instant invention.

Tomlinson teaches a conversion coating method for treating magnesium alloy material(abstract, col. 2 lines 17-21). The coating solution comprising fluoride,

phosphates and a crystal deformation agent such as nitrilotris(methylene) triphosphonic acid(NTMP)(abstract, claim 24).

With respect to claim 7 of the instant invention, it would have been obvious to one of ordinary skill in the art to have used the coating process of Matsushima to treat magnesium alloy as taught by Tomlinson since both Matsushima and Tomlinson coating compositions are substantially similar(i.e. both contain phosphate ions, fluoride ions and organo-phosphonic acids). The forming of an insoluble salt by the reaction of phosphonic acid and magnesium metal would be inherent in the method of Matsushima in view of Tomlinson since the coating composition if Matsushima in view of Tomlinson contains phosphonic acid.

With respect to claim 8 of the instant invention, the coated magnesium alloy substrate prepared by the coating method of Matsushima in view of Tomlinson would meet all the limitations of instant claim 8.

10. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Briles in view of Venables.

The teachings of Briles and Venables are discussed in paragraph 8 and 9 above.

With respect to claims 1-3 of the instant invention, Briles teachings the presence of phosphate and fluoride ions in its coating composition for treating magnesium or magnesium alloys(see paragraph 9 above), which meets the preamble of "for forming a chromate-free, corrosion resistant coating on a product formed from magnesium or a magnesium alloy" as recited in instant claim 1.

However, Briles fails to explicitly teach the addition of the claimed organo-phosphonic acid as corrosion inhibitor as recited in the instant claim 1.

Venable teaches utilizing 1- about 500ppm of nitrilotris(methylene) triphosphonic acid as corrosion inhibitor for the surface treatment of aluminum(see paragraph 8 above).

It would have been obvious to one of ordinary skill in the art to have incorporated the nitrilotris(methylene) triphosphonic acid of Venables in the amounts of 1-about 500ppm as disclosed by Venables into the coating solution of Briles as corrosion inhibitor in order to improve corrosion resistance by reducing hydration of metal oxides as taught by Venables(col. 2 line 34 – col. 3 line10)

With respect to claim 4 of the instant invention, Briles discloses the use of vanadate in its coating solution(see paragraph 9 above).

With respect to claim 5 of the instant invention, the amount range of 1-about 500ppm of NTMP as disclosed by Briles in view of Venables overlaps the claimed amount of corrosion inhibitor (i.e. 10ppm to 0.5 wt%) as recited in instant claim 5. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed NTMP amount range from the disclosed range of Briles in view of Venables would have been obvious to one skilled in the art since Briles in view of Venables teach the same utilities in its' disclosed NTMP amount range.

With respect to claim 6 of the instant invention, Briles further discloses that the phosphate ions come from potassium phosphate and the concentration for potassium phosphate is in the range of 1.8 – 3.6 ounces per gallon of solution(page 2 paragraph

Art Unit: 1742

0018), which is equivalent to 13.48 – 26.96 g/L. The fluoride ions are present as sodium bifluoride in the concentration range of 0.4 – 0.7 ounces per gallon(i.e. 2.99 – 5.24 g/L). Therefore, the phosphate and fluoride ion concentrations of Briles overlap the claimed phosphate and fluoride ion concentrations of 1 – 50g/L and 1-10g/L respectively. A prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed phosphate and fluoride concentration ranges from the disclosed range of Briles in view of Venables would have been obvious to one skilled in the art since Briles in view of Venables teach the same utilities in its' disclosed phosphate and fluoride concentration ranges.

With respect to claim 7 of the instant invention, the coating process of Briles in view of Venables to treat magnesium or magnesium alloy using the coating composition of Briles in view Venables meets all the claim limitations as recited in the instant claims 7. The forming of the claimed insoluble salt by the reaction of phosphonic acid and magnesium metal would be inherent in the method of Briles in view of Venables since the coating composition of Briles in view of Venables contains phosphonic acid.

With respect to claim 8 of the instant invention, the coated magnesium or magnesium alloy substrate of Briles in view of Venables meets all the claim limitations as recited in the instant claims 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lois Zheng whose telephone number is (571) 272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LLZ
12/13/2004

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